RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

From

01/08/2022

Mrs.L. Rogini Devi

Assistant professor/S&H

RAAK College of Engineering and Technology

Puducherry -110

To

The Principal

RAAK College of Engineering and Technology

Puducherry -110

Respected Sir,

Sub: Requisition for Approval to Conduct Skill Development program / Value added Course on **"22SH01- Mathematical Modeling"**- reg.

This is to bring to your kind notice that the Skill Development Team is planning to conduct a Program on "**22SH01- Mathematical Modeling**" for all the first Year Department of Science & Humanities. Students from 09-08-2022 to 13-08-2022.

The main focus of this program is to provide a better exposure to our students on the Mathematical Modeling practical applications.

The syllabus and course plan structured are not listed in the Pondicherry University Curriculum and the same have been verified and approved by the Principal/HoD/Professors and Skill development team.

Hence, I kindly request you to approve event planned. The details and the necessary proofs are attached with this letter.

Thanking you,

Yours faithfully,

L. Rogini Devi

AP/S&H

Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road,
Sulthanpet Post,
Puducherry - 605 110

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An ISO 9001:2015 Certified Institution

DEPARTMENT OF SCIENCE AND HUMANITIES PRESENTS

VALUE ADDED COURSE ON

MATHEMATICAL MODELING

2022-2023

DATE: 09/08/2022 to 13/08/2022

VENUE: RAAKCET

TIME: 09 am to 04 pm

Resource Person:

Mr. S. Ravichandran
Assistant Professor,
IFET Engineering college.

For Registration Contact:

Ms. Subathira, AP/ S & H,
8654927135.

HOD

Mr. S. Ramachandran

PRINCIPAL

Dr. S. Seenuvasamurthi

Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
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Value Added Courses

2022-2023

Department of Science & Humanities.

22SH01- Mathematical Modeling

Syllabus

Duration: 36 hours

Course Objective:

- This course is on introduction to mathematical modeling based on the use of elementary functions to describe and explore real- world phenomena and data.
- Linear exponential, logarithmic, and polynomial function models are examined closely and are applied to real-word data in course assignments and projects.
- Other function models may also be considered. Throughout the course, computational tools are used to implement, examine, and validate these models.

Course Outcomes:

- To handle freely the concepts using in mathematical modeling
- To analyze a simple physical phenomena in order to create a mathematical model
- To apply numerical methods to solve systems of ordinary differential equations
- To understand the mechanism of mathematical modeling in chemical engineering.

Module 1: Functions; modeling with linear functions **(9 Hours)**

Function definition; domain and range – Functions described by tables, graphs and formulas – increasing and decreasing functions; local and absolute extrema – Cancavity; inflection points – average rate of change – Linear functions with applications – Slope – intercept and point – slope forms – Piecewise – Linear functions with applications.

Module 2: Linear Regression; modeling with exponential functions **(9 Hours)**

Fitting linear models to data – Evaluating model error ; the sum of squared errors – interpreting the correlation coefficient – exponential growth functions with applications – growth factors and rates – doubling time – compound interest – exponential decay functions with applications – decay factors and rates – half-life.

Module 3: Additional topics in exponential modeling, modeling with logarithmic functions; linear systems **(9 Hours)**

Fitting exponential models to data – continuous compounding - continuous growth and decay – Newton's law of cooling and heating – logarithmic functions with applications – fitting logarithmic models to data – matrices – representing a system of linear equations with a matrix equation – solving linear systems via matrix equations.

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Module 4: Modeling with polynomial functions **(9 Hours)**

Quadratic functions with applications – projectile motion – maxima and minima applications – fitting quadratic models to data – interpreting the coefficient of determination – polynomial functions of higher degree with applications – polynomial interpolation – fitting cubic and quartic models to data.

Course Designed by

Approved by

Principal

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CO - ATTAINMENT MAPPING

Sl. No	Register Number	Student Name	CO1	CO2	CO3	CO4
1.	22TD0751	Adhityan M	✓	✓	✓	✓
2.	22TD0752	Anitha P	✓	✓	✓	✓
3.	22TD0753	Balaji B	✓	✓	✓	✓
4.	22TD0754	Carllewis F	✓	✓	✓	✓
5.	22TD0755	Chandru E	✓	✓	✓	✓
6.	22TD0756	Charulatha M	✓	✓	✓	✓
7.	22TD0757	Ezhilarasi E	✓	✓	✓	✓
8.	22TD0758	Gopikrishnan P	✓	✓	✓	✓
9.	22TD0759	Gurumoorthy B	✓	✓	✓	✓
10.	22TD0760	Harishkumar K	✓	✓	✓	✓
11.	22TD0761	Immanuvel A	✓	✓	✓	✓
12.	22TD0762	Imran Farose J	✓	✓	✓	✓
13.	22TD0763	Jayavardani S	✓	✓	✓	✓
14.	22TD0764	Karthik Roshan M	✓	✓	✓	✓
15.	22TD0765	Kunal M	✓	✓	✓	✓
16.	22TD0766	Ladislas A	✓	✓	✓	✓
17.	22TD0767	Lakshmi M	✓	✓	✓	✓

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18.	22TD0768	Logeshwaran R	✓	✓	✓	✓
19.	22TD0769	Madhesh P	✓	✓	✓	✓
20.	22TD0770	Magathi S	✓	✓	✓	✓
21.	22TD0771	Mahalakshmi R	✓	✓	✓	✓
22.	22TD0772	Manoranjith R	✓	✓	✓	✓
23.	22TD0773	Monica P	✓	✓	✓	✓
24.	22TD0774	Mouhamed Azaroudine	✓	✓	✓	✓
25.	22TD0775	Muralidharan M	✓	✓	✓	✓
26.	22TD0776	Naresh B	✓	✓	✓	✓
27.	22TD0777	Narkees Begam A	✓	✓	✓	✓
28.	22TD0778	Poovarasan P	✓	✓	✓	✓
29.	22TD0779	Pravinkumar P	✓	✓	✓	✓
30.	22TD0780	Rani V	✓	✓	✓	✓
31.	22TD0781	Saisridhar J	✓	✓	✓	✓
32.	22TD0782	Sarumathi C	✓	✓	✓	✓
33.	22TD0783	Selliamma A	✓	✓	✓	✓
34.	22TD0784	Selvaganapathy J	✓	✓	✓	✓
35.	22TD0785	Senthil R	✓	✓	✓	✓
36.	22TD0786	Shaik Mohammad Moosa	✓	✓	✓	✓

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37.	22TD0787	Sharfounisha Mr	✓	✓	✓	✓
38.	22TD0788	Vasanth Kumar G	✓	✓	✓	✓
39.	22TD0789	Velan A	✓	✓	✓	✓
40.	22TD0790	Vidiya Sagar Kumar Verma G	✓	✓	✓	✓

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Value Added Courses

2022-2023

Department of Science & Humanities.

22SH01- Mathematical Modeling

COURSE PLAN

S.no	Date	Hours	Time	Topic	Faculty details
DAY -1					
1	09.08.22	1,2	9AM -11AM	sources of water - Characteristics of water, Water Analysis- study of \\11k'r samples - acidity..	Mr.S.Ravichandran & Mr.K.Devanathan
2		3,4	11.15AM – 1.15 PM	alkalinity. Hardness, free chlorine, chlorine demand, calcium, mug.nc$.ium. iron. manganese. zinc	Mr.S.Ravichandran
3		5,6	2 PM -4PM	ammonia, nitrate, sulphate and fluoride, DOC, BOD, COD and their imporatance - Disadvantages of hard water - Scale and sludge formation in boiler Brackish water:	Mr.K.Devanathan
DAY 2					
4	10.08.22	7,8	9AM -11AM	Inroduction -water Pollutants - physical and chemical pollution of water - ground water pollution - harmful effects of ground water pollution - surface water	Mr.S.Ravichandran
5		9,10,	11.15AM – 1.15 PM	River water and sea water p0llution.	Mr.K.Devanathan
6		11,12	2 PM -4PM	Oil pollution of water. Effects oil pollution in marine water - Radioactive materials in water- ROle of pollution control boards.	Mr.S.Ravichandran
DAY -3					
7	11.08.22	13,14	9AM -11AM	Physico chemical Examination of water 10 Hrs Collection of samples - colour - odour Turbidity pH -	Mr.K.Devanathan

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				temperature - Soilds:	
8		15,16	11.15AM – 1.15 PM	Total Solids. DissolYed solids, suspended solids, settable solids - Acidity - Alkalinity - Hardness - calcium. ~lugnesium	Mr.S.Ravichandran
9		17,18	2 PM -4PM	Sodium - Potassium - Iron-Dissolved Qxygen, BOD, COD, biological and chemical treatments.	Mr.K.Devanathan
DAY -4					
10	12.08.22	19,20	9AM -11AM	Concept of material, energy momentum balance	Mr.S.Ravichandran
11		21,22	11.15AM – 1.15 PM	case study of process variables and control in typical unit operation as distillation	Mr.K.Devanathan
12		23,24	2 PM -4PM	absorption, reactors, heat exchangers	Mr.S.Ravichandran
DAY -5					
13	13.08.22	25,26	9AM -11AM	Automation of Assembly lines- Concept of automation in industry,mechanization and automation.	Mr.K.Devanathan
14		27,28	11.15AM – 1.15 PM	Automation using Hydraulic systems – Design aspects of various elements of hydraulic systems such as pumps, valves, filters	Mr.S.Ravichandran
15		29,30	2 PM -4PM	reservoirs, accumulators, actuators and intensifiers.	Mr.K.Devanathan
ASESSMENT EXAM WILL BE CONDUCTED AFTER ONE WEEK OF COURSE COMPLETION *					

BREAK TIME: 11.00 TO 11.15 AM **LUNCH BREAK: 1.15 PM TO 2.00 PM**

COURSE DESIGNED BY
MRS.L.ROGINI DEVI

APPROVED BY
SKILL DEVELOPMENT TEAM

PRINCIPAL

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VALUE ADDED COURSES

2022-2023

Department of Science & Humanities.

EVENT REPORT

Name of the Course: 22SH01- Mathematical Modeling

Name of the Instructors: Mr.S.Ravichandran & Mr.K.Devanathan

Year/ Branch: I / S&H

Duration of Course: 36 Hours (09-08-2022 to 13-08-2022)

Assessment Date: 20.08.2022

Post Event Summary:

The course was inaugurated on 09-08-2022 at 9.30 A.M. by our respectable principal and sessions were continued as per the schedule. Students were enriched their knowledge by attending the course. Finally, the course concluded by vote of thanks.

On 20.08.2018 assessment was conducted and feedbacks were collected from all the participants.

CO - Attainment:

CO1: To handle freely the concepts using in mathematical modeling

CO2: To analyze a simple physical phenomena in order to create a mathematical model

CO3: To apply numerical methods to solve systems of ordinary differential equations

CO4: To understand the mechanism of mathematical modeling in chemical engineering.

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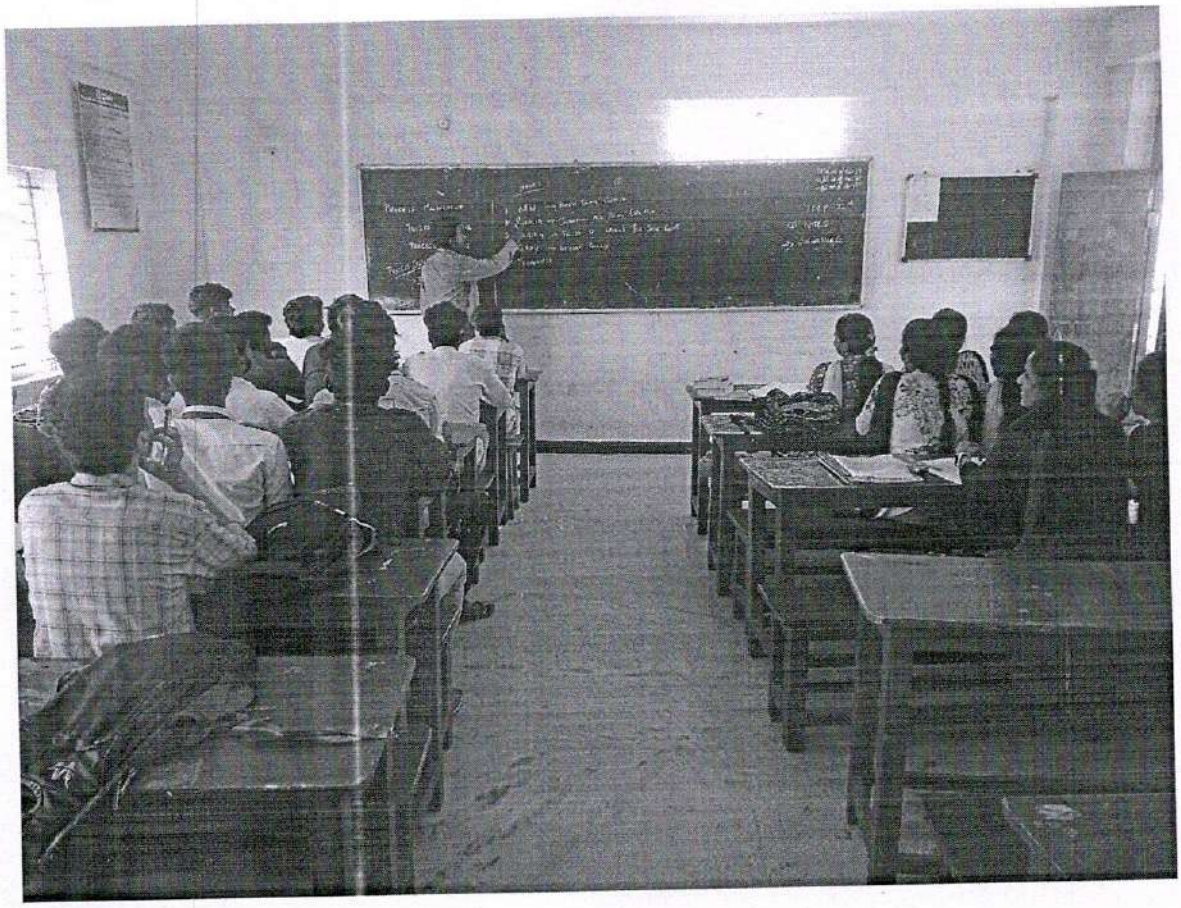
Value Added Course on Mathematical Modeling 2022-23



case study of process variables and control in typical unit operation as distillation on 12.08.22

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From

Mrs.L.Rogini Devi

Assistant Professor /S&H

RAAK College of Engineering and Technology

Puducherry -110

To

The Principal

RAAK College of Engineering and Technology

Puducherry -110

Respected sir,

Sub: Requisition for Approval to Conduct Skill Development program / Value added Course on **"22SH02- Chemistry of Industrial Process"**- reg.

This is to bring to your kind notice that the Skill Development Team is planning to conduct a Program on **"22SH02- Chemistry of Industrial Process"** for all the first Year Department of Science & Humanities, students from 09-08-2022 to 13-08-2022.

The main focus of this program is to provide a better exposure to our students on the Chemistry Of Industrial Process practical applications.

The syllabus and course plan structured are not listed in the Pondicherry University Curriculum. and the same have been verified and approved by the Principal/HoD/Professors and Skill development team.

Hence, I kindly request you to approve event planned. The details and the necessary proofs are attached with this letter.

Thanking you,

Yours faithfully,

L. Rogini

Mrs.L.Rogini Devi

AP/S&H

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RAAKCET/PRINCIPAL/CIR/AUG2022 02/08/2022

CIRCULAR

This is to inform that the Skill Development Team is planning to conduct a value added course on **"22SH02- Chemistry Of Industrial Process"** for all the First Year Department of Science & Humanities, students from 09-08-2022 to 13-08-2022. Students are asked to utilize this opportunity and improve their skills

PRINCIPAL

Circulation to:

1. All Students
2. All Faculty & Staff Members
3. All HoDs

Copy to:

1. All HoDs
2. Office

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DEPARTMENT OF SCIENCE AND HUMANITIES PRESENTS

VALUE ADDED COURSE ON

CHEMISTRY OF INDUSTRIAL PROCESS

2022-2023

DATE: 09/08/2022 to 13/08/2022

VENUE: RAAKCET

TIME: 09 am to 04 pm

Resource Person:

Mr. A. Raguraman
Assistant Professor,
Mailam Engineering college.

For Registration Contact:

Ms. Aruljothy, AP/ S & H,
9798654831.

HOD

Mr. S. Ramachandran

PRINCIPAL

Dr. S. Seenuvasamurthi

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VALUE ADDED COURSES

2022-2023

Department of Science & Humanities.

22SH02- Chemistry of Industrial Process

Syllabus

Duration: 36 hours

Course Objective:

- Define and implement cleaner production activities, industrial water management strategies for pollution and toxicity prevention.
- To Select the most appropriate treatment technology and design a wastewater treatment methods to treat an industrial effluent stream for a selected industry.
- Integrate cleaner production, industrial water management, wastewater treatment processes, and disposal in the design on an industrial waste treatment process for a selected industry.

Course Outcomes:

- Understand the basic manufacturing various chemicals
- Understand characteristics of chemical reactors
- Understand about case study of process variables and control in unit operation
- Understand about various Automation techniques..

Module 1: Characteristics of water (9 Hours)

Sources of water - Characteristics of water, Water Analysis- study of \\11k'r samples - acidity. alkalinity. Hardness, free chlorine, chlorine demand, calcium, mug.nc$.ium. iron. manganese. zinc. ammonia, nitrate, sulphate and fluoride, DOC, BOD, COD and their imporatance - Disadvantages of hard water - Scale and sludge formation in boiler Brackish water:

Module 2: Water Pollution (9 Hours)

Introduction -water Pollutants - physical and chemical pollution of water - ground water pollution - harmful effects of ground water pollution - surface water. River water and sea water p0llution. Oil pollution of water. Effects oil pollution in marine water - Radioactive materials in water- ROle of pollution control boards.

Module 3: chemical Examination (9 Hours)

Physico chemical Examination of water 10 Hrs Collection of samples - colour - odour Turbidity pH - temperature - Soilds: Total Solids. DissolYed solids, suspended solids, settable solids - Acidity - Alkalinity - Hardness - calcium. ~lugnesium, Sodium - Potassium - Iron-Dissolved Qxygen, BOD, COD, biological and chemical treatments.

Module 4: Concept of material (9 Hours)

Concept of material, energy momentum balance, case study of process variables and control in typical unit operation as distillation, absorption, reactors, heat exchangers.

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Module 5: Automation of Assembly lines **(9 Hours)**

Automation of Assembly lines- Concept of automation in industry,mechanization and automation. Automation using Hydraulic systems – Design aspects of various elements of hydraulic systems such as pumps, valves, filters, reservoirs, accumulators, actuators and intensifiers.

Course Designed by **Approved by** **Principal**

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CO - ATTAINMENT MAPPING

Sl. No	Register Number	Student Name	CO1	CO2	CO3	CO4
1.	22TH0351	AMARNATH A	✓	✓	✓	✓
2.	22TH0352	ARCHANA K	✓	✓	✓	✓
3.	22TH0353	ARTHI S	✓	✓	✓	✓
4.	22TH0354	BALAMURUGAN P	✓	✓	✓	✓
5.	22TH0355	DHANUSU E	✓	✓	✓	✓
6.	22TH0356	GOKULNATH A	✓	✓	✓	✓
7.	22TH0357	HARIHARAN M	✓	✓	✓	✓
8.	22TH0358	HARINI P	✓	✓	✓	✓
9.	22TH0359	HARISH RAJ K	✓	✓	✓	✓
10.	22TH0360	HEMALATHA P	✓	✓	✓	✓
11.	22TH0361	JAGANATHAN C	✓	✓	✓	✓
12.	22TH0362	JAMUNA M	✓	✓	✓	✓
13.	22TH0363	JAYARAJ AALAS L	✓	✓	✓	✓
14.	22TH0364	JUNIOR NEWTON K	✓	✓	✓	✓
15.	22TH0366	KAVIARASAN P	✓	✓	✓	✓
16.	22TH0367	KISHOTHKUMAR R	✓	✓	✓	✓
17.	22TH0368	MANOJ A	✓	✓	✓	✓

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18.	22TH0369	MATHINA B	✓	✓	✓	✓
19.	22TH0370	MOHAMMED IBRAHIM IRFAN S	✓	✓	✓	✓
20.	22TH0371	NISHANTHI D	✓	✓	✓	✓
21.	22TH0372	PALAPERAGASAM N	✓	✓	✓	✓
22.	22TH0373	PERUMAL N	✓	✓	✓	✓
23.	22TH0374	PRAVIN KUMAR M	✓	✓	✓	✓
24.	22TH0375	RAMINASH M	✓	✓	✓	✓
25.	22TH0376	ROHITH V	✓	✓	✓	✓
26.	22TH0377	SARAVANAN B	✓	✓	✓	✓
27.	22TH0378	SRIRAM S	✓	✓	✓	✓
28.	22TH0379	SRIVELAN K	✓	✓	✓	✓
29.	22TH0380	SUBRAMANIAN ALIAS SANTHOSH K	✓	✓	✓	✓
30.	22TH0381	SUDHAKAR S	✓	✓	✓	✓
31.	22TH0382	SURENDER V	✓	✓	✓	✓
32.	22TH0383	SURYA R	✓	✓	✓	✓
33.	22TH0384	SURYA S	✓	✓	✓	✓
34.	22TH0385	THAMIZHSELVAM R	✓	✓	✓	✓
35.	22TH0386	VENKATESH S	✓	✓	✓	✓
36.	22TH0387	VETHESH C	✓	✓	✓	✓

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37.	22TH0388	VIGNESH KUMAR S	✓	✓	✓	✓
38.	22TH0389	YOGESH H	✓	✓	✓	✓
39.	22TC0552	EDWIN J	✓	✓	✓	✓
40.	22TC0553	JAYAPRRAKASH G	✓	✓	✓	✓
41.	22TC0554	KIRUBAKARAN S	✓	✓	✓	✓
42.	22TC055	MAHESHWARI S	✓	✓	✓	✓
43.	22TC0556	MUGENDHAN D	✓	✓	✓	✓
44.	22TC0557	PRAVIN G	✓	✓	✓	✓
45.	22TC0558	SUBASH S	✓	✓	✓	✓
46.	22TC0559	SUPRAJA S	✓	✓	✓	✓
47.	22TE0142	KAVIPRIYA B	✓	✓	✓	✓
48.	22TE0143	MAHENDRAN P	✓	✓	✓	✓
49.	22TE0144	MANIBHARATHI S	✓	✓	✓	✓
50.	22TE0145	SHYAM SAKTHI S	✓	✓	✓	✓
51.	22TE0146	THULASIDHARAN M	✓	✓	✓	✓
52.	22TB0111	KEERTHI VASU G	✓	✓	✓	✓
53.	21TB0112	VIMAL KANTH M	✓	✓	✓	✓

RAAK College of Engineering & Technology

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VALUE ADDED COURSES

2022-2023

Department of Science & Humanities.

22SH02- Chemistry Of Industrial Process

COURSE PLAN

S.no	Date	Hours	Time	Topic	Resource Person
DAY -1					
1	09.08.22	1,2	9 AM -11 AM	sources of water - Characteristics of water, Water Analysis- study of \\11k'r samples - acidity..	Mr.A.Raguraman & Dr.G.Senthilnathan
2		3,4	11.15 AM – 1.15 PM	alkalinity. Hardness, free chlorine, chlorine demand, calcium, mug.nc$.ium. iron. manganese. zinc	Mr.A.Raguraman
3		5,6	2 PM -4 PM	ammonia, nitrate, sulphate and fluoride, DOC, BOD, COD and their imporatance - Disadvantages of hard water - Scale and sludge formation in boiler Brackish water:	Dr.G.Senthilnathan
DAY 2					
4	10.08.22	7,8	9 AM -11 AM	Inroduction -water Pollutants - physical and chemical pollution of water - ground water pollution - harmful effects of ground water pollution - surface water	Mr.A.Raguraman
5		9,10,	11.15 AM – 1.15 PM	River water and sea water p0llution.	Dr.G.Senthilnathan
6		11,12	2 PM -4 PM	Oil pollution of water. Effects oil pollution in marine water - Radioactive materials in water- ROle of pollution control boards.	Mr.A.Raguraman
DAY -3					
7	11.08.22	13,14	9 AM -11 AM	Physico chemical Examination of water 10 Hrs Collection of samples - colour - odour Turbidity pH -	Dr.G.Senthilnathan

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				temperature - Soilds	
8		15,16	11.15 AM – 1.15 PM	Total Solids. DissolYed solids, suspended solids, settable solids - Acidity - Alkalinity - Hardness - calcium. ~lugnesium	Mr.A.Raguraman
9		17,18	2 PM -4 PM	Sodium - Potassium - Iron-Dissolved Qxygen, BOD, COD, biological and chemical treatments.	Dr.G.Senthilnathan
DAY -4					
10	12.08.22	19,20	9 AM -11 AM	Concept of material, energy momentum balance	Mr.A.Raguraman
11		21,22	11.15 AM – 1.15 PM	case study of process variables and control in typical unit operation as distillation	Dr.G.Senthilnathan
12		23,24	2 PM -4 PM	absorption, reactors, heat exchangers	Mr.A.Raguraman
DAY -5					
13	13.08.22	25,26	9 AM -11 AM	Automation of Assembly lines- Concept of automation in industry, mechanization and automation.	Dr.G.Senthilnathan
14		27,28	11.15 AM – 1.15 PM	Automation using Hydraulic systems – Design aspects of various elements of hydraulic systems such as pumps, valves, filters	Mr.A.Raguraman
15		29,30	2 PM -4 PM	Reservoirs, accumulators, actuators and intensifiers.	Dr.G.Senthilnathan

ASESSMENT EXAM WILL BE CONDUCTED AFTER ONE WEEK OF COURSE COMPLETION *

BREAK TIME: 11.00 TO 11.15 AM **LUNCH BREAK: 1.15 PM TO 2.00 PM**

COURSE DESIGNED BY
MRS.L.ROGINI DEVI

APPROVED BY
SKILL DEVELOPMENT TEAM

PRINCIPAL
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VALUE ADDED COURSES

2022-2023

Department of Science & Humanities.

EVENT REPORT

Name of the Course: 22SH02- Chemistry of Industrial Process

Name of the Instructors: Mr.A.Raguraman & Dr.G.Senthilnathan

Year/ Branch: I/ S&H

Duration of Course: 36 Hours (09-08-2022 to 13-08-2022)

Assessment Date: 20.08.2022

Post Event Summary:

The course was inaugurated on 09-08-2022 at 9.30 A.M. by our respectable principal and sessions were continued as per the schedule. Students were enriched their knowledge by attending the course. Finally, the course concluded by vote of thanks.

On 20.08.2022 assessment was conducted and feedbacks were collected from all the participants.

CO - Attainment:

CO1: Understand the basic manufacturing of various chemicals
CO2: Understand characteristics of chemical reactors
CO3: Understand about case study of process variables and control in unit operation
CO4: Understand about various Automation techniques..

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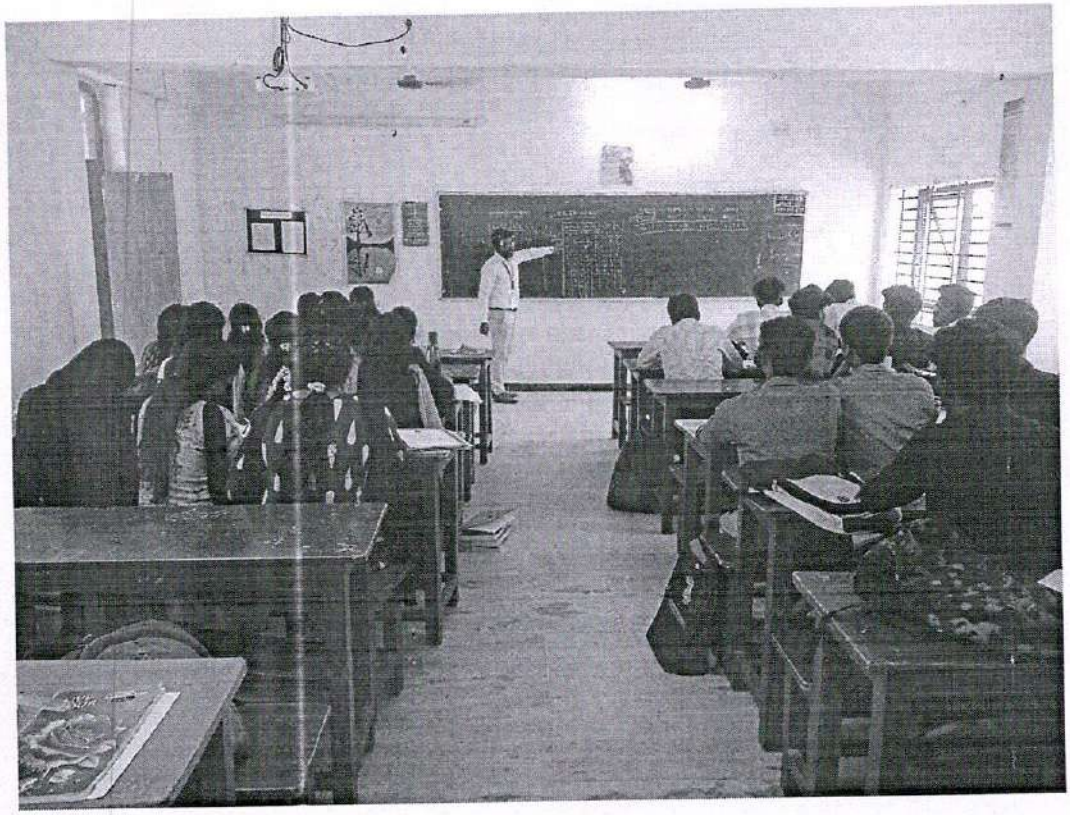
Value Added Course on Chemistry Of Industrial Process 2022-23



Concept of material, energy momentum balance on 11.08.22

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